Isolation of graphs

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Given a set $\mathcal{F}$ of graphs, we call a copy of a graph in $\mathcal{F}$ an *$\mathcal{F}$-graph*. The *$\mathcal{F}$-isolation number* of a graph G, denoted by $\iota(G, \mathcal{F})$, is the size of a smallest subset D of the vertex set of G such that the closed neighbourhood $N[D]$ of D intersects the vertex sets of the $\mathcal{F}$-graphs contained by G (equivalently, $G - N[D]$ contains no $\mathcal{F}$-graph). When $\mathcal{F}$ consists of a 1-clique, $\iota(G, \mathcal{F})$ is the *domination number* of G. When $\mathcal{F}$ consists of a 2-clique, $\iota(G, \mathcal{F})$ is the *vertex-edge domination number* of G. The study of the general $\mathcal{F}$-isolation problem was introduced by Caro and Hansberg [4] in 2017. This study is expanding very rapidly. A brief account of its development and of the speaker's recent work in this field [1, 2, 3] will be provided.

References

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[4] Y.Caro, A.Hansberg, Partial domination - the isolation number of a graph, *Filomat* 31 (2017) pp.3925-3944.